

NEEDLE TIPS

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The end of hepatitis B virus transmission begins at birth

Last month, the Immunization Action Coalition (IAC) launched its *Give birth to the end of Hep B* campaign, which urges hospitals and other birthing centers to administer the first dose of hepatitis B vaccine to babies before hospital discharge.

Nearly one in three U.S. newborns leaves the hospital unprotected by hepatitis B vaccine, and approximately 800 infants become chronically infected with hepatitis B virus (HBV) each year. Universally administering the birth dose before hospital discharge would protect the vast majority of newborns who are exposed to HBV from their infected mothers' blood.

Timing of the first dose of hepatitis B vaccine is critical! The sooner after birth the newborn receives hepatitis B vaccine, the earlier the infant can mount an immune response capable of overcoming the infection. Specifically, 70%–95% of infants born to mothers who are HBsAg-positive will be protected from chronic HBV infection if given hepatitis B vaccine (alone) within 12 hours of birth. Delaying the first dose of hepatitis B vaccine by even a few days significantly reduces its effectiveness in preventing chronic HBV infection in newborns. Note that CDC's Advisory Committee on Immunization Practices (ACIP) recommends administering hepatitis B immune

globulin (HBIG), along with hepatitis B vaccine, within 12 hours of birth for infants born to mothers whose HBsAg is positive or unknown.

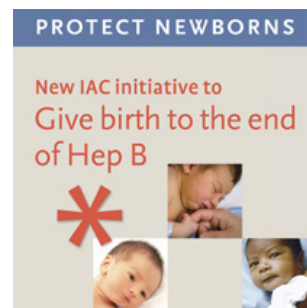
Universal hepatitis B vaccine birth dose policies are needed to provide a safety net to ensure that all newborns are protected from chronic HBV infection, even

when medical errors occur. This is why ACIP made the birth dose recommendation a major part of its 2005 strategy to eliminate hepatitis B virus transmission in the United States. (See www.cdc.gov/mmwr/PDF/rr/rr5416.pdf.)

Medical errors in perinatal settings can lead to newborn HBV infection. Examples include

- Ordering the wrong hepatitis B screening test for the pregnant woman;
- Misinterpreting or mistranscribing hepatitis B test results;

The end of hepatitis B... continued on p. 5 ▶



Ask the Experts

IAC extends thanks to our experts, medical officer Andrew T. Kroger, MD, MPH; nurse educator Donna L. Weaver, RN, MN; and medical officer Iyabode Akinsanya-Beysolow, MD, MPH. All are with the National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention (CDC).

Immunization questions?

- Call the CDC-INFO Contact Center at (800) 232-4636 or (800) CDC-INFO
- Email nipinfo@cdc.gov
- Call your state health dept. (phone numbers at www.immunize.org/coordinators)

Influenza vaccine

What influenza vaccine products will be available during the 2013–14 influenza season?

Seven manufacturers now produce influenza vaccine for the U.S. market through different technologies (e.g., egg-based, cell culture-based, and recombinant hemagglutinin vaccines). The seven manufacturers and the products they have available for the upcoming season are listed below.

A series of new abbreviations will help identify the different types of vaccines available. The current abbreviations include *IIV* for inactivated influenza vaccine, *RIV* for recombinant hemagglutinin influenza vaccine, *LAIV* for live, attenuated influenza vaccine, and *ccIIV* for cell culture-based IIV. The addition of either a 3 or a 4 at the end of an abbreviation indicates if the vaccine is trivalent or quadrivalent (e.g., IIV3, RIV3, IIV4, LAIV4). The available products are

- Afluria (IIV3), CSL Limited
- Fluarix (IIV3, IIV4), GlaxoSmithKline
- FluLaval (IIV3), ID Biomedical Corporation of Quebec

- FluMist (LAIV4), MedImmune
- Fluvirin (IIV3), Novartis
- Flucelvax (ccIIV3), Novartis
- Flublok (RIV3), Protein Sciences Corporation
- Fluzone (IIV3, IIV4), sanofi pasteur
- Fluzone High-Dose (IIV3), sanofi pasteur
- Fluzone Intradermal (IIV3), sanofi pasteur

IAC has developed a handout that provides infor-

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IAC's
"Ask the
Experts"
team
from
CDC



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information about these numerous products, their age indications, CPT and Q codes, and other details. Access it at www.immunize.org/catg.d/p4072.pdf.

What are the differences in trivalent and quadrivalent influenza vaccines?

Most of the influenza vaccine offered for the 2013–2014 season will be trivalent (three components), containing two A viruses and one of the B viruses. The 2013–2014 trivalent influenza vaccine is made from the following three viruses:

- A/California/7/2009 (H1N1)pdm09-like virus
- A(H3N2) virus antigenically like the cell-propagated prototype virus A/Victoria/361/2011
- B/Massachusetts/2/2012-like virus

A limited quantity of seasonal influenza vaccine will be quadrivalent (four components), containing two A viruses and two B viruses. The quadrivalent vaccines will contain the three viruses listed above, plus a B/Brisbane/60/2008-like virus.

If quadrivalent vaccine includes one additional strain, why isn't it preferred for use over trivalent vaccines in ACIP's 2013–14 influenza recommendations?

Even though both influenza B viruses are likely to cause disease during an influenza season, for trivalent vaccine, experts had to choose between the two very different B viruses to pair with the two A viruses. The quadrivalent vaccine that will be available for the 2013–14 season includes both B viruses. However, while quadrivalent vaccines may eventually replace trivalent vaccines, it is anticipated that during the coming season only a limited quantity of quadrivalent vaccine will be available. Consequently, ACIP does not express a preference for use of one type of influenza vaccine over another type (i.e., live over inactivated, or quadrivalent over trivalent) for persons for

whom more than one type of vaccine is indicated and available.

I heard there was a new influenza vaccine that can be given to people with severe egg allergies. Is that true?

If someone has a severe allergy to eggs with symptoms suggestive of anaphylaxis, CDC recommends referring patients to a provider experienced in managing allergy. Only inactivated influenza vaccines should be given in this circumstance. If the severe allergy to eggs is diagnosed as anaphylactic allergy, and the patient is age 18 through 49 years, then the provider can consider using Flublok, the one inactivated influenza vaccine that is egg-free. FDA licensed Flublok, a trivalent influenza vaccine, in January 2013. Unlike current production methods for other available seasonal influenza vaccines, production of Flublok does not use the whole influenza virus or chicken eggs in its manufacturing process.

Flublok has a shorter shelf life than other currently available inactivated influenza vaccines. It expires 16 weeks from the production date. Other currently available inactivated influenza vaccines expire on June 30, 2014.

You can find additional information about Flublok at www.cdc.gov/flu/protect/vaccine/qa_flublok-vaccine.htm.

How many doses of vaccine are recommended for children younger than 9 years who are receiving influenza vaccine for the first time?

In settings where adequate vaccination history from prior to the 2010–2011 season is unavailable, children 6 months through 8 years of age need only 1 dose of vaccine in 2013–2014 if they received a total of 2 or more doses of seasonal vaccine since July 1, 2010. Children who did not receive a total of 2 or more doses of seasonal vaccine since July 1, 2010, require 2 doses in 2013–2014. In settings where adequate vaccination history from prior to the 2010–2011 season is available, an alternate approach may be used. This is the alternate approach: If a child age 6 months through 8 years is known to have received at least 2 doses of seasonal influenza vaccine during any prior season, and at least 1 dose of a 2009 (H1N1)-containing vaccine—i.e., either 2010–2011, 2011–2012, or

2012–2013 seasonal vaccine or the monovalent (H1N1) 2009 vaccine—then the child needs only 1 dose for 2013–2014. Otherwise the child needs 2 doses for the 2013–2014 season.

Can a child who needs 2 doses of influenza receive 1 dose of quadrivalent vaccine and 1 dose of trivalent vaccine?

Yes. You can give these two vaccines, as long as the 2 doses are appropriately spaced.

Does ACIP recommend one influenza product over another for pregnant women?

Pregnant women can receive any of the inactivated vaccines. They should not be given the live quadrivalent attenuated influenza vaccine (FluMist, MedImmune, LAIV4).

Why is a higher dose influenza vaccine (Fluzone High-Dose) available for adults 65 and older?

Aging decreases the body's ability to develop a good immune response after getting influenza vaccine, which places older people at greater risk of severe illness from influenza. A higher dose of antigen in the vaccine should give older people a better immune response and therefore provide better protection against influenza. Data from clinical trials comparing Fluzone to Fluzone High-Dose among people age 65 and older indicate that a stronger immune response (i.e., higher antibody levels) occurs after vaccination with Fluzone High-Dose. Whether the improved immune response leads to greater protection against influenza disease after vaccination is not yet known. A study designed to determine how effective Fluzone High-Dose is in preventing illness from influenza, when compared with standard-dose Fluzone, is expected to be completed in 2014–2015.

CDC has stated no preference for using high-dose influenza vaccine or standard-dose influenza vaccine when vaccinating people age 65 and older. CDC stresses that vaccination is the first and most important step in protecting against influenza.

If a patient is undergoing treatment for cancer, is it safe to vaccinate her or him against influenza?

People with cancer need to be protected from influenza, and they can and should receive inactivated influenza vaccine (not LAIV) even if they are immunosuppressed. Cancer patients and survivors are at higher risk for complications from flu, including hospitalization and death.

Here is a helpful CDC web page on cancer and influenza for patients: www.cdc.gov/cancer/flu.

Tdap vaccine

If a woman received Tdap in early pregnancy, should she get it again in the third trimester?

No, it is not recommended to give another dose of Tdap in such cases. Optimal timing for Tdap

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Needle Tips correction policy
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administration is between 27 and 36 weeks' gestation because of transplacental antibody kinetics.

According to ACIP recommendations published in *MMWR* on February 22, 2013, "Tdap may be administered any time during pregnancy, but vaccination during the third trimester would provide the highest concentration of maternal antibodies to be transferred closer to birth." More information is available at www.cdc.gov/mmwr/preview/mmwrhtml/mm6207a4.htm.

Each time there is a pregnancy in the family, should fathers and other family members receive a Tdap booster to ensure adequate protection and boost the cocoon effect to protect the newborn from pertussis?

At this time, ACIP does not recommend additional doses of Tdap for fathers or other family members/caregivers. The multiple Tdap recommendation to optimize immunity for the infant applies only to the pregnant woman.

A pertussis outbreak is occurring in our town, with many cases happening in the schools. Is there a recommendation for boosting middle- and high-school students with an additional dose of Tdap during an outbreak if students have already had 1 dose?

Currently, ACIP recommends only 1 lifetime dose of Tdap for everyone except pregnant women.

In light of the ongoing pertussis outbreaks in the nation, ACIP is continuing to evaluate the need for additional pertussis protection. The Immunization Action Coalition always announces new ACIP recommendations in its free weekly electronic newsletter, *IAC Express*. If you're not already one of the newsletter's nearly 50,000 subscribers, you can sign up at www.immunize.org/subscribe.

Pneumococcal vaccine

Currently, ACIP recommends pneumococcal polysaccharide (PPSV23) for smokers age 19–64 years. Should we also vaccinate 16-year-olds who smoke?

No. Currently no data exist to indicate that people younger than 19 are at increased risk of pneumococcal disease.

Rather than giving pneumococcal conjugate vaccine (PCV13) first and waiting 8 weeks to

give PPSV as recommended for an immunocompromised child (2 years+) or adult patient, we inadvertently gave both vaccines at the same visit. We are looking for guidance.

When these two vaccines are given simultaneously, each probably affects the other detrimentally. The risk of diminished responsiveness (which is "caused" by PPSV23, not PCV13) means that you should count the PPSV23 dose as valid for adults, and repeat the PCV13 dose 1 year after the PPSV23 dose was administered. You should count the PPSV23 dose as valid for children, and repeat the PCV13 dose 8 weeks after the PPSV23 dose was administered and complete the series as age appropriate.

Rotavirus vaccine

What is the latest on rotavirus vaccination and intussusception?

Some, but not all, studies suggest that RotaTeq and Rotarix vaccines may possibly cause a small increase in the risk of intussusception. It is possible that an estimated one to three U.S. infants out of 100,000 might develop intussusception within 7 days of getting their first dose of rotavirus vaccine. That means 40 to 120 vaccinated U.S. infants might develop intussusception each year.

The benefits of rotavirus vaccines in preventing hospitalizations and deaths from rotavirus illness far outweigh the small possible risk of intussusception. Rotavirus vaccines prevent more than 65,000 U.S. hospitalizations from rotavirus illness each year. CDC continues to recommend routine rotavirus vaccination of U.S. infants. More information can be found on this issue at www.cdc.gov/vaccinesafety/vaccines/rotavsb.html.

HPV vaccine

Why did Merck discontinue the registry for collecting reports of pregnant women who inadvertently received its HPV vaccine (Gardasil) during pregnancy?

Because HPV vaccine is not recommended for use during pregnancy, Merck facilitated a registry to document outcomes when its HPV vaccine (Gardasil) was inadvertently administered to pregnant women. This registry was ongoing for more than

6 years (June 2006 –April 2013), and Merck has fulfilled its FDA obligation to facilitate it. But more importantly, the data from the registry are reassuring with respect to safety after pregnancy exposures. Review of the data collected during the first 5 years of the registry does not support a causal relationship between HPV vaccine and birth defects.

Vaccine information statements

Why does CDC include 2D barcodes on VISs now?

As part of a modernization initiative, CDC began adding barcodes to VISs in April 2012. The addition of the barcode is intended primarily to help immunization providers save time by allowing them to scan certain required information about the VIS (e.g., the name and edition date of the VIS) into an electronic medical record, immunization information system, or other electronic database. Scanning the barcode instead of manually recording the information is optional.

Using barcodes requires a 2D barcode scanner and software that is programmed to accept and process data contained in the VIS barcodes. Providers may continue to use any VISs they printed before CDC started adding barcodes as long as the VIS content is otherwise the same. See the next question for more information about discarding old VISs. For more information about barcodes and scanning, visit www.cdc.gov/vaccines/hcp/vis/barcodes.html.

It seems CDC is changing the format of VISs. Do we have to throw our old supply away and use the new ones?

Not necessarily. CDC is in the process of re-releasing all VISs in a slightly modified format. The modified VISs have a consistent look and use consistent language in the sections common to all VISs. Modified VISs will not necessarily be new, but may simply be redesigned versions of existing VISs and have the same edition dates as existing VISs. Providers do not need to discard their existing VIS stocks when nothing but the VIS format has been changed. CDC posts information on its website to alert healthcare providers when the older version of a VIS should not be used. This information is available on CDC's web section titled What's New with VISs, available at www.cdc.gov/vaccines/hcp/vis/what-is-new.html.

To submit an "Ask the Experts" question . . .
You can email your questions about immunization to us at admin@immunize.org. IAC will respond to your inquiry. Because we receive hundreds of emails each month, we cannot guarantee that we will use your question in "Ask the Experts." IAC works with CDC to compile new Q&As for our publications based on commonly asked questions. Most of the questions are thus a composite of several inquiries.

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